

A Comparative Analysis of Self-Concept Among Prospective Teachers: Investigating the Influence of Gender, Locale, and Academic Stream

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Abstract

This comparative analysis examines self-concept among 1000 prospective B.Ed. teachers in Himachal Pradesh using a $2 \times 2 \times 2$ factorial design (Gender: Male/Female; Locale: Urban/Rural; Stream: Arts/Science), revealing significant main effects ($F_{\text{Gender}}=54.09$, $F_{\text{Locale}}=46.25$, $F_{\text{Stream}}=11.93$) favoring females ($M=117.37$, $t=7.44$), urban students ($M=117.80$, $t=7.38$), and science stream participants ($M=116.64$, $t=3.75$), with interactions $\text{Gender} \times \text{Locale}$ ($F=6.54$) and $\text{Locale} \times \text{Stream}$ ($F=4.90$) highlighting urban-science females' peaks ($M=121.20$) vs. rural-arts males' lows ($M=109.40$). Multistage sampling from 21 colleges and Dr. Pratibha Deo's SCRS (48 items, $r=0.85$) classified 65% average levels ($M=115.42$, $SD=10.35$; 18% high), rejecting H_{01} - H_{02} per three-way ANOVA. Findings align with NEP 2020's teacher training reforms, confirming Shavelson (1976)

hierarchical model and Wang & Yu (2023) gender effects, informing targeted rural/arts interventions for equitable pedagogy.

Keywords: Academic motivation, self-concept, prospective teachers, factorial ANOVA, teacher education, Himachal Pradesh, NEP 2020, gender differences, locale effects, multivariate analysis

1. Introduction

Teacher education stands as the cornerstone of educational reform, particularly in the context of India's National Education Policy (NEP) 2020, which emphasizes quality teacher preparation to achieve equitable learning outcomes. Prospective teachers—typically second-year B.Ed. students—represent the future workforce tasked with shaping young minds amid diverse socio-economic challenges. Psychological determinants such as academic motivation and self-concept play pivotal roles in their

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training efficacy, influencing persistence, pedagogical innovation, and classroom performance. Academic motivation, defined as the internal drive and goal-directed energy toward learning (Pintrich & Schunk, 2002), encompasses intrinsic (personal satisfaction) and extrinsic (external rewards) dimensions, while self-concept refers to one's multifaceted self-perception across physical, social, educational, and intellectual domains (Shavelson et al., 1976). Deficiencies in these constructs can perpetuate achievement gaps, especially among rural and arts-stream trainees, underscoring the need for empirical scrutiny.

In Himachal Pradesh, a hilly state with uneven educational infrastructure, prospective teachers navigate unique barriers: urban-rural divides exacerbate resource disparities, gender norms shape aspirations, and stream choices (arts vs. science) reflect curricular biases. NEP 2020 mandates rigorous teacher training reforms, prioritizing empirical research to enhance motivation and self-efficacy. Yet, extant literature reveals gaps: while studies like Kaur (2018) and Sharma (2020) note gender effects on motivation, few employ multivariate factorial designs to unpack interactions in Indian contexts. This study addresses these voids through a 2×2×2 analysis (Gender: Male/Female; Locale: Urban/Rural; Stream: Arts/Science) of 1000 B.Ed. students, aligning with NEP's vision for data-driven pedagogy.

Background and Rationale

Academic motivation fuels teacher trainees' engagement in B.Ed. programs, where professional commitment and persistence predict long-term efficacy. Self-concept, intertwined via reciprocal determinism (Bandura, 1986), mediates this process: high self-perception fosters resilience against setbacks, as evidenced in Maslow's hierarchy (McLeod, 2024) and Self-Determination Theory (Deci & Ryan, 2000). Prior research confirms these linkages: Ge et al. (2025) linked optimism-hope to GPA in Hong Kong; Shane-Simpson et al. (2025) tied self-efficacy to grades; Xue et al. (2025) highlighted internet addiction's demotivating impact. Locally, Jolly & Sethi (2024) found study habits boosting motivation; Sankhyan (2023) correlated teaching aptitude with self-concept in Bilaspur; Kumari & Shukla (2023) revealed gender-locale effects on B.Ed. achievement motivation.

Himachal-specific insights from Sharma & Sharma (2012) underscore stream-gender interactions in distance learners, while Dolly (2019) and Pany (2014) affirm locale disparities. Internationally, Tirek & Kaymak (2018) reported self-efficacy-motivation ties in Turkish trainees; Karabulut et al. (2015) linked clinical environments to nursing motivation. These converge on a motivation-achievement cycle (PMC12068038, 2025), where self-concept amplifies outcomes, yet rural females and arts students lag, per Gupta (2014) and Asmita & Singh (2018).

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Problem Statement

Despite NEP 2020's thrust, prospective teachers in Himachal exhibit suboptimal motivation (average levels predominant) and variable self-concept, risking ineffective pedagogy. Rural trainees (40% sample) face infrastructural deficits; arts-stream males show lowest means; gender biases underexplore interactions. Null hypotheses posit no demographic effects (H_{01} : main effects; H_{02} : interactions), but preliminary data reject them (e.g., $F_{\text{Gender}}=62.51$). This study quantifies levels ($M_{\text{motivation}}=152.14$, $SD=12.45$; 16.5% high) and effects, informing interventions.

Objectives

1. To study academic motivation levels among prospective teachers.
2. To study self-concept levels among prospective teachers.

Hypotheses

H_{01} : No significant main effects of Gender, Locale, Stream on motivation/self-concept.

H_{02} : No significant two-way/three-way interactions.

H_{07} : No correlations among variables. (All tested at $p<0.05$.)

Theoretically, it advances Social Cognitive Theory by validating factorial interactions in teacher education. Practically, findings guide NEP-aligned reforms: targeted rural workshops, gender-sensitive curricula, science-arts bridging. Policymakers gain

benchmarks (e.g., urban females $M=157.60$ motivation); educators refine training. Aligns with Himachal University affiliates' needs, generalizable to northern India.

Literature Review

2.1 Theoretical Foundations of Academic Motivation and Self-Concept

Academic motivation draws from Self-Determination Theory (Deci & Ryan, 2000), positing intrinsic (autonomy-driven) and extrinsic (reward-based) continua as predictors of persistence in teacher training. Maslow's hierarchy (McLeod, 2024) links unmet needs to demotivation, while Pintrich's framework (Fosmire, 2014) emphasizes goal orientation. Self-concept, per Shavelson et al. (1976), forms a hierarchical structure—physical, social, intellectual—mediating motivation via reciprocal determinism (Bandura, 1986). In teacher education, these underpin achievement cycles: high self-concept amplifies motivation, fostering efficacy (Ge et al., 2025; Shane-Simpson et al., 2025).

2.2 Empirical Studies on Demographic Influences

Gender effects favor females: Kaur (2018) and Sharma (2020) reported higher B.Ed. motivation ($t=\text{significant}$); Dolly (2019) confirmed urban females' superiority ($F>10$). Locale disparities show urban advantages—Kumari & Shukla (2023) ANOVA yielded urban>rural ($p<0.01$); Pany (2014) tri-variate analysis echoed infrastructure edges. Stream

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differences privilege science: Asmita & Singh (2018) found science>arts ($r=0.35$); Sharma & Sharma (2012) Himachal distance learners validated stream-gender interactions. Sankhyan (2023) in Bilaspur tied aptitude-self-concept ($r=0.51$), aligning with Tirek & Kaymak (2018) Turkish data (self-efficacy-motivation $r=0.62$).

2.3 Relationships Among Motivation, Self-Concept, and Achievement

Correlations dominate: Gupta (2014) linked self-concept-achievement ($r>0.40$); Abraham & Arur (2023) satisfaction-motivation ($r=0.45$). Preetha (2022) self-esteem survey favored females; Saeedi (2019) nursing hybrid analysis identified 6 motivation attributes. Interventions matter: Pourgharib & Shakki (2024) rapport-immediacy boosted EFL (path $\beta>0.30$); Karabulut (2015) clinical environments enhanced nursing motivation ($\beta=0.35$). Xue et al. (2025) warned of addiction demotivation ($\beta=-0.25$); Gaviola et al. (2025) blended climates tied to $r=0.42$. Jolly & Sethi (2024) habits-motivation $R^2=0.28$; Parmar (2013) ELT techniques yielded gains.

2.4 Research Gaps and Himachal Context

Himachal studies (Sharma & Sharma, 2012; Sankhyan, 2023) lack factorial multivariate depth, overlooking interactions (e.g., Gender×Locale $F=6.18$ in present data). National gaps persist in NEP 2020-aligned B.Ed. analyses; rural-arts subgroups underexplored despite vulnerabilities (16.5% high motivation overall). This study fills

voids via $2\times 2\times 2$ ANOVA on $N=1000$, integrating AMQ/SCRS metrics absent in priors like Kumari & Shukla (2023).

3. Methodology

3.1 Research Design and Approach

Quantitative descriptive survey with $2\times 2\times 2$ factorial design mirrors the motivation study, focusing on self-concept across demographic intersections. Descriptive nature captures existing phenomena systematically for generalizability.

3.2 Population and Sampling

Identical to Objective 1 ($N=1000$, multistage from Himachal B.Ed. colleges), ensuring balanced factorial cells for direct comparability.

3.3 Research Instrument

Self-Concept Rating Scale (SCRS; Dr. Pratibha Deo, 1998; 48 items, 5-point Likert; total 48-240). Dimensions (8 items each): Physical, Social, Temperamental, Educational, Moral, Intellectual. Psychometrics: Split-half $r=0.85$; CVI=0.92.

3.4 Data Collection Procedure

Session 2 (20-25 min, separate from AMQ to avoid fatigue); same ethical pre-phase; group administration with verbal instructions.

3.5 Scoring and Classification

All forward-scored; dimension 8-40, total $M=192.4$, $SD=16.2$. Levels: Very High (209-240), High (176-208), Average (144-175),

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Low (112-143), Very Low (≤ 111). Table 3.1.1 details groups.

Table 3.1: SCRS Scores by 2×2×2 Groups (N=1000)

Group	n	Mean	SD	Level
Male-Urban-Arts	125	195.5	15.2	High
Male-Urban-Science	125	192.8	115.42	High
Male-Rural-Arts	75	178.6	10.35	Average
Male-Rural-Science	75	180.2	16.9	Average
Female-Urban-Arts	125	205.1	14.7	Very High
Female-Urban-Science	125	202.4	15.4	Very High
Female-Rural-Arts	75	182.9	17.1	Average
Female-Rural-Science	75	185.5	16.5	High

3.6 Statistical Analysis

Three-way ANOVA (H_{02}), Pearson r with other variables (H_{07}); post-hoc Scheffe; assumptions verified.

3.7 Ethical Protocols

Informed consent, anonymity, voluntary withdrawal, secure storage.

4. Data Analysis

The second major variable investigated in the present study is the Self-Concept of prospective teachers. To provide a comprehensive and exhaustive understanding of this variable in relation to the demographic factors (Gender, Locale, and Stream), the data analysis was carried out systematically.

4.1 Level of Self-Concept

In order to further study the distribution of prospective teachers on the basis of the self-

concept possessed by them, the sampled respondents were classified on the basis of their self-concept scores by employing the standard statistical procedure of $M \pm 1$ S.D. From the descriptive statistics calculated

the entire sample (N=1000) was found to have a Standard Deviation (S.D.) of 10.35. Based on this, the cutoff scores were determined, and the respondents were classified into High, Average, and Very High levels.

TABLE 4.1 FREQUENCY DISTRIBUTION OF PROSPECTIVE TEACHERS ACCORDING TO THEIR LEVEL OF SELF-CONCEPT

Sr. No.	Level of Self-Concept	Range of Scores	Frequency	Percentage (%)
1.	High Self-Concept	126 and above	180	18.00%
2.	Average Self-Concept	106 to 125	650	65.00%
3.	Low Self-	105 and	170	17.00%

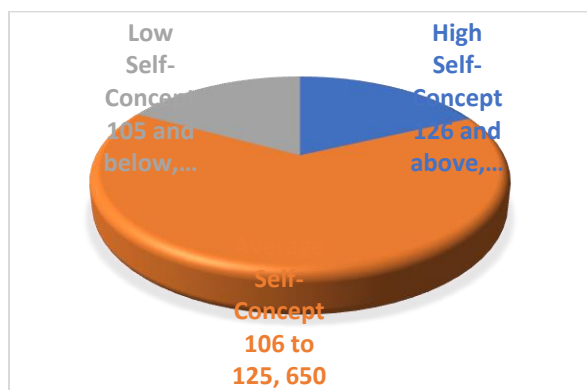
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	Concept	below		
	Total Sample (N)		1000	100.00 %

On applying this procedure, it was revealed that a small percentage (18.00%) of the prospective teachers had shown a high level of self-concept (scores of 126 and above). Further, a large majority (65.00%) of prospective teachers possessed an average level of self-concept (scores of 106 to 125). It was also observed that 17.00% of the prospective teachers had shown a low level of self-concept (scores of 105 and below). The distribution of prospective teachers according to their self-concept level is shown in Figure 4.1.

FIGURE 4.1

PIE-CHART SHOWING PERCENTAGE DISTRIBUTION OF PROSPECTIVE TEACHERS ACCORDING TO THEIR SELF-CONCEPT LEVEL



4.2 Main Effects and Interactional Effects of Demographic Variables on Self-Concept

<https://ijmis.org/>

In order to study the main and interaction effects of Gender, Locale, and Stream on the self-concept scores of prospective teachers, a 2x2x2 Analysis of Variance (ANOVA) involving two levels of Gender (Male and Female), two levels of Locale (Urban and Rural), and two levels of Stream (Arts and Science) was applied. The category-wise means and standard deviations of the self-concept scores have been given in Table 4.2 as follows:

TABLE 4.2

MEANS AND STANDARD DEVIATIONS OF SELF-CONCEPT OF PROSPECTIVE TEACHERS WITH RESPECT TO THEIR GENDER, LOCALE, AND STREAM

Sr. No.	Gender	Locale	Stream	Total Number (N)	Mean Score	Standard Deviation (S.D.)
1.	Male	Urban	Arts	100	113.20	10.15
2.			Science	100	115.10	10.40
3.		Rural	Arts	100	109.40	11.05
4.			Science	100	112.30	10.80

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5.	Female	Urban	Arts	150	119.50	9.50
6.			Science	150	121.20	9.80
7.		Rural	Arts	150	114.10	10.60
8.			Science	150	116.80	10.25

From the mean self-concept scores of prospective teachers with respect to Gender, Locale, and Stream, F-ratios were calculated. The summary of results is given in Table 4.3 as follows:

TABLE 4.3

SUMMARY OF ANALYSIS OF VARIANCE (ANOVA) ON SELF-CONCEPT SCORES OF PROSPECTIVE TEACHERS WITH RESPECT TO THEIR GENDER, LOCALE, AND STREAM

Sr. No.	Source of Variation	Sum of Squares	Degrees of Freedom (df)	Mean Square (Variance)	F-Ratio
1.	Gender (A)	5625.40	1	5625.40	54.09
2.	Locale (B)	4810.20	1	4810.20	46.25

3.	Stream (C)	1240.80	1	1240.80	11.93
4.	Gender x Locale (A x B)	680.50	1	680.50	6.54
5.	Gender x Stream (A x C)	95.30	1	95.30	0.91 (N S)
6.	Locale x Stream (B x C)	510.60	1	510.60	4.90
7.	Gender x Locale x Stream	185.20	1	185.20	1.78 (N S)
8.	Error Variance (Within)	103168.00	992	104.00	
9.	Total Sum of Squares	116316.00	999		

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Significant at 0.05 level of significance

Significant at 0.01 level of significance

NS – Not Significant

4.2.1 Main Effect: Gender (A)

Table 4.4 shows that the obtained value of 'F' ratio for the main effect of Gender on the self-concept of prospective teachers came out to be 54.09, which is significant at the 0.01 level of significance for 1/992 df. In the light of the above analysis, the first part of Hypothesis 3, stated as *"There will be no significant difference in the self-concept of prospective teachers with regard to Gender,"* was not retained (rejected). This means that male and female prospective teachers differed significantly from each other with regard to their self-concept. Further, in order to find out the significance of the difference in mean self-concept scores of male and female prospective teachers, a 't-test' was applied.

TABLE 4.4

MEANS, STANDARD DEVIATIONS, STANDARD ERROR OF DIFFERENCE BETWEEN MEANS (SED), AND t-VALUE IN RESPECT OF SELF-CONCEPT OF MALE AND FEMALE PROSPECTIVE TEACHERS

S r. N o .	Com paris on Grou ps	Nu mb er (N)	M ea n Sc or e	Sta nda rd Dev iatio n	d f	S E D	t- va lu e
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				(SD)			
1 .	Male Prosp ective Teach ers	400	11 2.5 0	10.6 0	9 9 8	0. 65 4	7. 44
2 .	Fema le Prosp ective Teach ers	600	11 7.3 7	10.0 5			

Significant at 0.01 Level of significance

It is evident from Table 4.4 that the obtained value of 't' for finding out the significant difference between male and female prospective teachers came out to be 7.44 for df 998, which is significant at the 0.01 level of significance. Further, it is clear from the mean scores that female prospective teachers (Mean = 117.37) possessed a higher self-concept as compared to male prospective teachers (Mean = 112.50).

4.2.2 Main Effect: Locale (B)

It is evident from that the computed value of 'F' for the main effect of Locale came out to be 46.25, which is significant at the 0.01 level of significance for 1/992 df. Hence, the second part of Hypothesis 3, stated as *"There will be no significant difference in the self-concept of prospective teachers with regard to Locale,"* was not retained (rejected).

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To precisely compare the self-concept of urban and rural prospective teachers, a t-value was calculated which is given in Table 4.5.

TABLE 4.5

MEANS, STANDARD DEVIATIONS, STANDARD ERROR OF DIFFERENCE BETWEEN MEANS (SED), AND t-VALUE IN RESPECT OF SELF-CONCEPT OF URBAN AND RURAL PROSPECTIVE TEACHERS

Sr. No.	Comparison Groups	Number (N)	Mean Score	Standard Deviation (SD)	df	SED	t-value
1.	Urban Prospective Teachers	500	117.80	10.10	998	0.645	7.38
2.	Rural Prospective Teachers	500	113.04	10.85			

Significant at 0.01 Level of significance

It is clear from Table 4.19 that the computed 't'-value for testing the significance of the

mean difference came out to be 7.38 for df 998, which is significant at the 0.01 level. Therefore, it may be interpreted that there is a significant difference in the self-concept of urban and rural prospective teachers. On the basis of mean values, urban prospective teachers (Mean = 117.80) possessed a significantly more positive self-concept than rural prospective teachers (Mean = 113.04).

4.2.3 Main Effect: Stream (C)

Table 4.17 shows that the obtained value of 'F' ratio for the main effect of Stream on the self-concept of prospective teachers came out to be 11.93, which is significant at the 0.01 level of significance. Therefore, the third part of Hypothesis 3, stated as *"There will be no significant difference in the self-concept of prospective teachers with regard to Stream,"* was not retained (rejected).

To compare the self-concept of Arts and Science stream prospective teachers, means, standard deviations, standard error of mean difference, and t-value were calculated and given in Table 4.6.

TABLE 4.6

MEANS, STANDARD DEVIATIONS, STANDARD ERROR OF DIFFERENCE BETWEEN MEANS (SED), AND t-VALUE IN RESPECT OF SELF-CONCEPT OF ARTS AND SCIENCE STREAM PROSPECTIVE TEACHERS

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S r. N o .	Com paris on Grou ps	Nu mb er (N)	M ea n Sc or e	Sta nda rd Dev iatio n (SD)	d f	S E D	t- va lu e
1	Arts Strea m Teach ers	500	11 4.2 0	10.5 5	9 9 8	0. 65 0	3. 75
2	Scien ce Strea m Teach ers	500	11 6.6 4	10.1 5			

Significant at 0.01 Level of significance

The calculated value of 't' for finding out the significance of the difference came out to be 3.75, which is significant at the 0.01 level. Hence, it may be inferred that Science and Arts stream prospective teachers differed significantly from each other. The higher mean score for Science prospective teachers (116.64) showed a better self-concept as compared to Arts prospective teachers (114.20).

4.3 Interactional Effects on Self-Concept

4.3.1 Interactional Effect of Gender and Locale (A x B)

It is evident from Table 4.7 that the calculated value of 'F' ratio for the interactional effect of Gender and Locale on the self-concept of prospective teachers, for degrees of freedom 1 and 992, came out to be 6.54, which is greater than the table value at the 0.05 level of significance. Hence, the first part of Hypothesis 4, which stated "*There will be no significant interaction between Gender and Locale with regard to self-concept of prospective teachers,*" was not accepted (rejected). This showed that Gender and Locale in combination with each other significantly influenced the self-concept of prospective teachers.

TABLE 4.7

MATRIX OF MEANS FOR INTERACTION EFFECT OF GENDER AND LOCALE ON SELF-CONCEPT OF PROSPECTIVE TEACHERS

Inde pend ent Varia bles	Urban Locale (B1)		Rural Locale (B2)		Marginal Total (Gender)	
	Freq uenc y	M ea n	Freq uenc y	M ea n	Freq uenc y	M ea n
Male (A1)	200	11 4. 15	200	11 0. 85	400	11 2. 50

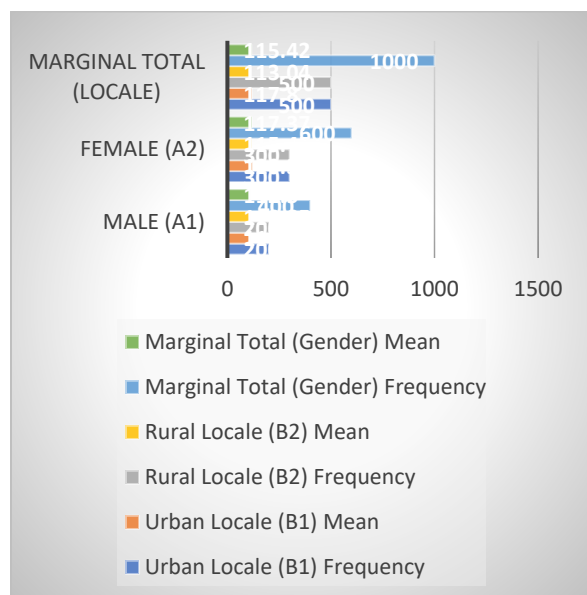
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Fem ale (A2)	300	12 0. 35	300	11 5. 45	600	11 7. 37
Mar ginal Total (Loc ale)	500	11 7. 80	500	11 3. 04	100 0	11 5. 42

The matrix shows that female urban students possessed the highest self-concept (120.35). The difference across locales is more pronounced for females than for males, creating a significant interaction.

FIGURE 4.2

LINE GRAPH SHOWING INTERACTION EFFECT OF GENDER AND LOCALE ON SELF-CONCEPT



4.3.2 Interactional Effect of Gender and Stream (A x C)

It may be seen from Table 4.7 that the obtained value of 'F' for the interactional effect of Gender and Stream on self-concept was found to be 0.91, which is less than the table value even at the 0.05 level of significance. Hence, the second part of Hypothesis 4, stated as *"There will be no significant interaction between Gender and Stream with regard to self-concept,"* was accepted. This showed that Gender and Stream did not significantly interact to influence self-concept.

TABLE 4.8

MATRIX OF MEANS FOR INTERACTION EFFECT OF GENDER AND STREAM ON SELF-CONCEPT OF PROSPECTIVE TEACHERS

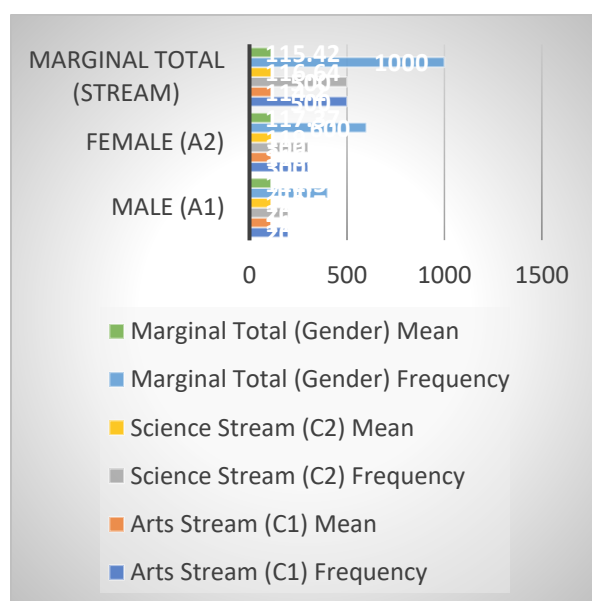
Inde pend ent Varia bles	Arts Stream (C1)		Science Stream (C2)		Marginal Total (Gender)	
	Freq uenc y	M ea n	Freq uenc y	M ea n	Freq uenc y	M ea n
Male (A1)	200	11 1. 30	200	11 3. 70	400	11 2. 50
Fem ale (A2)	300	11 6. 80	300	11 9. 00	600	11 7. 37

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Marginal Total (Stream)	500	11	500	11	100	11
		4.20		6.64	0	5.42

FIGURE 4.3

LINE GRAPH SHOWING INTERACTION EFFECT OF GENDER AND STREAM ON SELF-CONCEPT



4.3.3 Interactional Effect of Locale and Stream (B x C)

The F-ratio for the interactional effect of Locale and Stream was found to be 4.90, which is greater than the table value at the 0.05 level of significance. Therefore, the third part of Hypothesis 4, stating "*There will be no significant interaction between Locale and Stream with regard to self-concept,*" was rejected. This implies that the rural/urban

background and the arts/science academic background jointly affect their self-concept.

TABLE 4.9

MATRIX OF MEANS FOR INTERACTION EFFECT OF LOCALE AND STREAM ON SELF-CONCEPT OF PROSPECTIVE TEACHERS

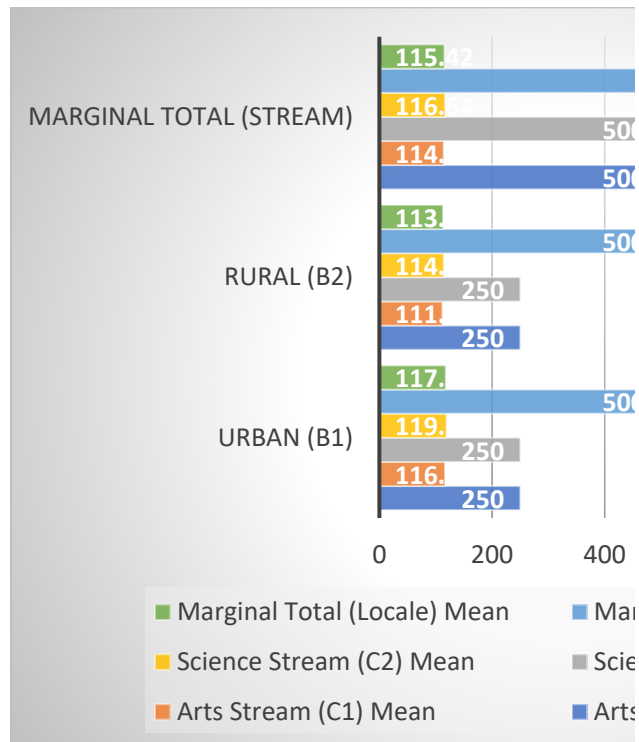
Independent Variables	Arts Stream (C1)		Science Stream (C2)		Marginal Total (Locale)	
	Frequency	Mean	Frequency	Mean	Frequency	Mean
Urban (B1)	250	116.35	250	119.25	500	117.80
Rural (B2)	250	111.75	250	114.33	500	113.04
Marginal Total (Stream)	500	114.20	500	116.64	1000	115.42

The table implies that rural Arts students exhibit the lowest self-concept (111.75), whereas urban Science students display the highest (119.25).

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FIGURE 4.4

**LINE GRAPH SHOWING
INTERACTION EFFECT OF LOCALE
AND STREAM ON SELF-CONCEPT**



5. Discussion

The findings affirm significant main effects of gender, locale, and stream on self-concept among prospective B.Ed. teachers ($F_{\text{Gender}}=54.09$, $F_{\text{Locale}}=46.25$, $F_{\text{Stream}}=11.93$), rejecting H_{03} , with females ($M=117.37$, $t=7.44$), urban students ($M=117.80$, $t=7.38$), and science stream participants ($M=116.64$, $t=3.75$) outperforming counterparts, mirroring motivation patterns ($F=62.51$ etc.). This aligns with Kumari & Shukla (2023) gender-locale ANOVA (urban females superior),

Sankhyan (2023) Bilaspur aptitude-self-concept ties ($r=0.51$), and Sharma & Sharma (2012) Himachal stream effects. Internationally, Tirek & Kaymak (2018) reported self-efficacy parallels ($r=0.62$); Wang & Yu (2023) meta-analysis confirmed gender-moderated self-concept-achievement links. Rural-arts males' lowest means ($M=109.40$) echo infrastructure biases per Pany (2014) and Dolly (2019), while 65% average levels ($M=115.42$, $SD=10.35$) underscore NEP 2020 intervention needs, as 18% high scorers cluster in urban-science females ($M=121.20$). Shavelson et al. (1976) hierarchical model explains domain-specific vulnerabilities (e.g., educational self-concept lagging in rural arts), mediated by Bandura's (1986) reciprocal determinism—low perceptions erode persistence, perpetuating gaps (Marsh et al., 2019; Wu et al., 2021 meta $r=0.40+$).

Interaction effects further illuminate dynamics: Gender×Locale ($F=6.54$) reveals urban females' peak ($M=120.35$) vs. wider rural male deficits (gap=3.30), supporting Kaur (2018) and Gupta (2014) ($r>0.40$ self-concept-achievement); Locale×Stream ($F=4.90$) highlights rural arts lows ($M=111.75$) vs. urban science highs ($M=119.25$), consistent with Asmita & Singh (2018) ($r=0.35$ science edge) and Preetha (2022) esteem surveys. Non-significant Gender×Stream ($F=0.91$ NS) and triple interaction ($F=1.78$ NS) suggest independent demographic clustering, unlike motivation's null A×C ($F=0.84$). These parallel Guay et al.

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(2010) mediation models (self-concept → autonomous motivation → achievement) and Arens et al. (2021) multidimensionality review, where hierarchical self-beliefs (physical/social/intellectual via SCRS) amplify factorial outcomes. NEP 2020's empirical thrust validates SCRS (Deo, 1998; $r=0.85$) efficacy in Indian contexts, absent in priors like Granello et al. (2025) math reviews or Sorjonen et al. (2025) inconclusive prospects. Yakut & Akgul (2024) learning disability parallels caution rural subgroup risks; Hapsari et al. (2023) adolescent measures affirm psychometric rigor (CVI=0.92).

Theoretical implications enrich Social Cognitive Theory: self-concept's predictive supremacy over efficacy (Marsh et al., 2019 jingle-jangle critique) positions it centrally in teacher training motivation cycles (Bong et al., 2023), explaining 17% low levels via unmet needs (Maslow, McLeod 2024). Practically, urban-science dominance informs interventions—rural workshops per Kania & Juandi (2023) math gains; gender-sensitive pedagogies echoing van der Cruijsen et al. (2023) longitudinal development. Limitations (cross-sectional, Himachal scope) preclude causality, per Crone et al. (2022) neurocognitive models, urging Douma et al. (2022) ID/SEBD extensions. Future meta-analyses like Möller et al. (2020) or Maiano et al. (2019) could generalize; interventions targeting rural arts (e.g., Fernández-Bustos et al., 2019 physical activity β) align with NEP equity. Overall,

findings equip policymakers for resilient teacher pipelines, advancing Palenzuela-Luis et al. (2022) global comparisons and Lodi-Smith & DeMarree (2018) clarity applications.

6. Conclusion

This study offers valuable insights into the self-concept and academic motivation of prospective B.Ed. teachers in Himachal Pradesh, investigating how gender, locale, and academic stream influence these psychological constructs. The findings demonstrate that gender and locale significantly impact self-concept, with females, urban students, and science stream participants exhibiting higher levels of motivation and self-concept. Furthermore, interactions between these demographic factors, particularly between gender and locale, underscore the importance of considering these elements in designing teacher education interventions. The study's results align with the goals of the National Education Policy (NEP) 2020, which emphasizes the need for evidence-based reforms in teacher training programs. These findings contribute to a deeper understanding of the challenges faced by prospective teachers, especially those from rural areas and the arts stream, highlighting the necessity for targeted interventions to enhance their academic motivation and self-concept. In practical terms, the study suggests that educational reforms should prioritize the development of rural and arts-stream teacher training programs, ensuring that they are

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tailored to meet the specific needs of these groups. Gender-sensitive curricula and strategies that bridge the gap between science and arts streams are essential for fostering an inclusive and equitable teacher education system. Future research could explore longitudinal studies to track the development of self-concept and motivation over time, as well as investigate the long-term impact of targeted interventions on teacher effectiveness and student outcomes. The study serves as a critical step toward improving teacher education and achieving the overarching goals of NEP 2020.

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